

REMARKS

This response is intended as a full and complete response to the non-final Office Action mailed July 27, 2003. In the Office Action, the Examiner notes that claims 1-19 are pending, of which claims 1-19 are rejected. By this response, Applicants have claims 1 and 13 are amended, and claims 2-12 and 14-19 continue unamended.

In view of both the amendments presented above and the following discussion, Applicants submit that none of the claims now pending in the application are anticipated or obvious under the respective provisions of 35 U.S.C. §102 or §103. Thus, Applicants believe that all of these claims are now in allowable form.

It is to be understood that the Applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to Applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

IN THE DRAWINGS:

The Applicants have amended the drawings to conform reference numbers to the specification. Such reference designation changes do not add any new subject matter to the application.

IN THE SPECIFICATION:

The Applicants have amended the specification to provide minor grammatical corrections and to change reference designations to conform to the reference designations in the drawings. Such grammatical corrections and reference designation changes do not add any new subject matter to the application.

REJECTIONS

35 U.S.C. §102

Claims 1, 4, 8-13, 15-16 and 19

The Examiner has rejected claims 1, 4, 8-13, 15-16 and 19 under 35 U.S.C. §102(b) as being unpatentable by Gothard et al. (U.S. 6,369,770, hereinafter "Gothard"). Applicants respectfully traverse the rejection.

The Applicants have amended independent claim 1 (and similarly, independent claim 13) to recite features of the Applicants' invention that the Applicants consider to be inventive. In particular, independent claim 1, as amended, recites:

"An antenna for communicating with a mesh network comprising:
a plurality of phased array elements configured in an M x N array, where M and N are integers greater than 1, said plurality of phased array elements adapted to selectively synthesize one or more radiation patterns for communicating with neighboring nodes of a mesh network; and
a drive circuit for supplying microwave power to the plurality of phased array elements and for controlling a directionality of the radiation pattern." (emphasis added).

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984)(citing Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 U.S.P.Q. 193 (Fed. Cir. 1983)) (emphasis added)). The Gothard reference fails to disclose each and every element of the claimed invention, as arranged in the claim. Specifically, the Gothard reference fails to teach "a plurality of phased array elements configured in an M x N array, where M and N are integers greater than 1, said plurality of phased array elements adapted to selectively synthesize one or more radiation patterns for communicating with neighboring nodes of a mesh network."

In particular, the Gothard reference discloses "In a preferred embodiment, each antenna element 22 is disposed on the ground plane 20 in the dispersed manner as illustrated in the figure. That is, a preferred embodiment includes five elements which are equally spaced about the perimeter of the ground plane 20 and a sixth element is

positioned at a location corresponding to a center of the ground plane 20.” (see Gothard, Col. 4, Lines 45-51 and FIG. 1a).

By contrast the Applicant’s invention claims a plurality of phased array elements configured in an M x N array, where M and N are integers greater than 1. Specifically, “Figure 4 depicts one embodiment of an arrangement for the antenna elements within the array 302. This embodiment comprises five active columns 400, 402, 404, 406 and 408. Each column 400, 402, 404, 406, and 408 comprises eight elements 400A-H, 402A-H, 404A-H, 406A-H, and 408A-H. Each element is a radiating patch. The number of elements in the column determines the vertical beam width of the antenna. More or less than 8 elements may be used in a column.” (see Applicant’s specification, page 8, Paragraph 0035, and FIG. 4).

The Gothard reference fails to teach, or even suggest, a plurality of phased array elements configured in an M x N array, where M and N are integers greater than one. Rather, the Gothard reference merely discloses each antenna element is disposed in a circular manner around the perimeter of the ground plane, and a sixth element positioned in a location corresponding to the center of the ground plane. Since a circular pattern of array elements is not the same as an M x N array of elements, the Gothard reference fails to teach each and every element of the claimed invention, as arranged in the claim.

As such, Applicants submit that independent claim 1 is not anticipated and fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder. Independent claim 13 recites similar limitations as recited in independent claim 1. As such, and for at least the same reasons as discussed above, the Applicants submit that independent claim 13 also is not anticipated and fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder. Furthermore, claims 4, 8-12, 15-16 and 19 depend, either directly or indirectly, from independent claims 1 and 13 and recite additional features thereof. As such and at least for the same reasons as discussed above, Applicants submit that these dependent claims are also not anticipated and fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder. Therefore, Applicants respectfully request that the Examiner’s rejections be withdrawn.

35 U.S.C. §103

Claims 2-3, 5-7, 14 and 18

The Examiner has rejected claims 2-3, 5-7, 14 and 18 as being obvious and unpatentable under the provisions of 35 U.S.C. §103(a). In particular, the Examiner has rejected claims 2-3, 5-7, 14 and 18 as being unpatentable over Gothard. Applicants respectfully traverse the rejection.

Claims 2-3, 5-7, 14 and 18 depend, either directly or indirectly from independent claims 1 and 13, and recite additional features thereof. For example, dependent claim 2 recites in part:

"An antenna for communicating with a mesh network comprising:
a plurality of phased array elements configured in an M x N array, where M and N are integers greater than 1, said plurality of phased array elements adapted to selectively synthesize one or more radiation patterns for communicating with neighboring nodes of a mesh network; and
a drive circuit for supplying microwave power to the plurality of phased array elements and for controlling a directionality of the radiation pattern." (emphasis added).

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The Gothard reference fails to teach or suggest the Applicants' invention as a whole.

As discussed above, the Gothard reference fails to teach or suggest the Applicants' invention as claimed in Applicants' independent claims 1 and 13. In particular, the Gothard reference fails to teach or suggest the Applicants' claimed "a plurality of phased array elements configured in an M x N array, where M and N are integers greater than 1, said plurality of phased array elements adapted to selectively synthesize one or more radiation patterns for communicating with neighboring nodes of a mesh network."

As discussed above, Gothard discloses "in a preferred embodiment, each antenna element 22 is disposed on the ground plane 20 in the dispersed manner as illustrated in the figure. That is, a preferred embodiment includes five elements which are equally spaced about the perimeter of the ground plane 20 and a sixth element is positioned at a location corresponding to a center of the ground plane 20." (see Gothard, Col. 4, Lines 45-51). By contrast, the Applicant's invention claims that the phased array elements are configured by an $M \times N$ array, where M and N are integers greater than 1.

Furthermore, the arrangement of the Gothard antenna elements does not solve the problems addressed by the $M \times N$ array of the Applicant's invention. Specifically, the number of elements in the column (i.e. M of the $M \times N$ array) determines the vertical beam width of the antennae. (see Applicant's specification Page 8, Paragraph 35). The Gothard reference is silent with respect to determining the vertical beam width of the antennae. Accordingly, the $M \times N$ array configuration of the phased array elements of the Applicant's invention is not merely a design choice, but rather, such claimed arrangement provides a solution to address a deficiency of non $M \times N$ arrayed antenna elements, such as the circular arrangement disclosed by Gothard. Since the Gothard reference fails to solve the problems addressed by the Applicant's invention, as well as fails to teach or suggest the plurality of phased array elements configured in an $M \times N$ array, the Gothard reference fails to teach the Applicant's invention as a whole.

As such, the Applicants submit that dependent claim 2 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 3, 5-7, 14 and 18 recite similar features as recited in dependent claim 2. As such and for at least the same reasons as discussed above, the Applicants submit that these dependent claims are not obvious and fully satisfy the requirements of 35 U.S.C. §103. Therefore, Applicant respectfully submits that the Examiner's rejection of claims 2-3, 5-7, 14 and 18 should be withdrawn.

THE SECONDARY REFERENCES

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the Office Action. Therefore, the Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this Office Action.


CONCLUSION

Thus, Applicants submit that all of the claims presently in the application are not anticipated or obvious and, therefore, are patentable under the respective provisions of 35 U.S.C. §102 and §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Raymond R. Moser, Jr. or Steven M. Hertzberg at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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IN THE DRAWINGS

The attached sheets of drawings include changes to Figures 3, 5, and 7. These sheets replace the original sheet including Figs. 3, 5, and 7.

In Figure 3, duplicate reference numbers 312 associated with the port and attenuator have been corrected. Specifically, the port has been renumbered to reference number 324.

In FIG. 5, reference number “524” has been changed to “504” to conform with the specification. Similarly, In FIG. 7, reference numbers “708A-D” has been changed to “702A-D” to conform with the specification.

Attachment:

Replacement Sheet

Annotated Sheet Showing Changes



3/6

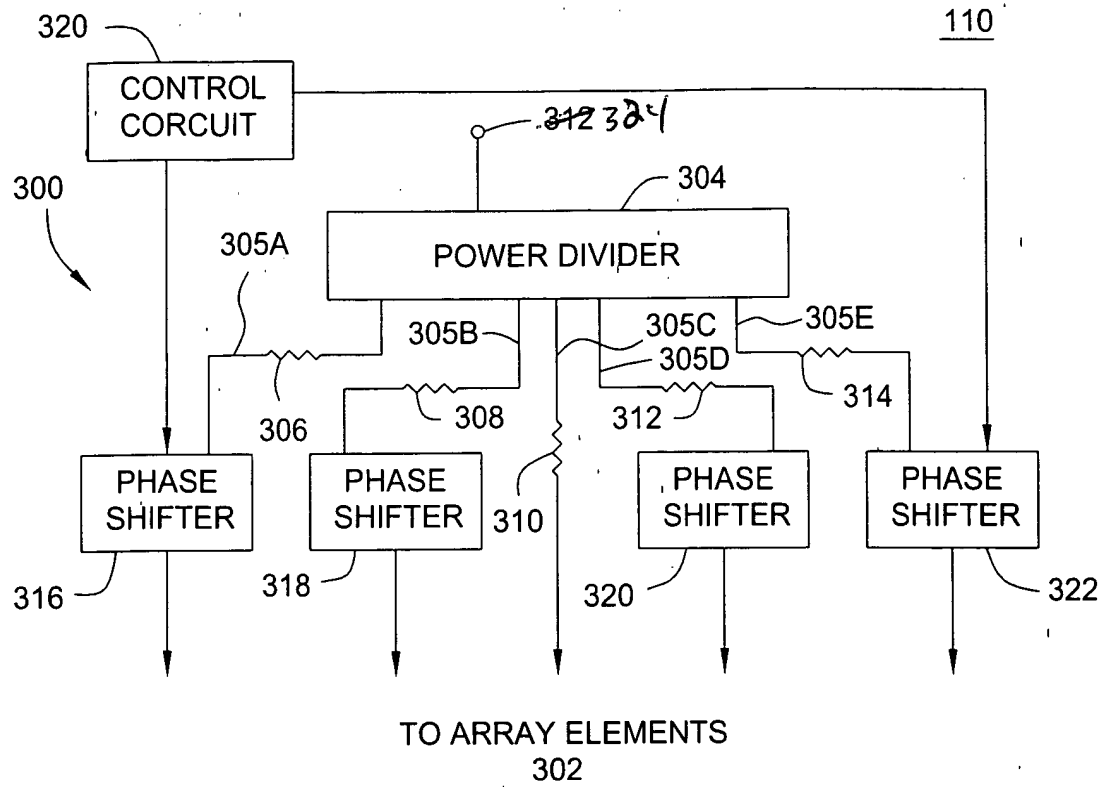


FIG. 3

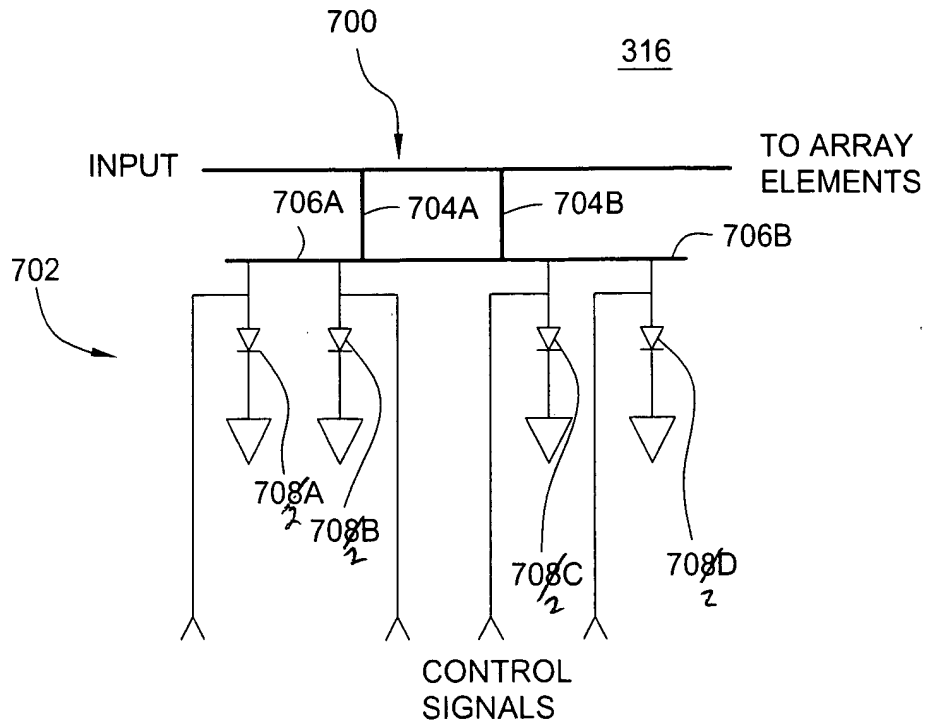
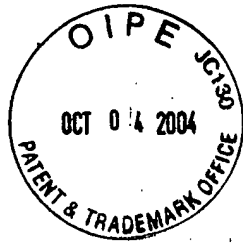


FIG. 7



5/6

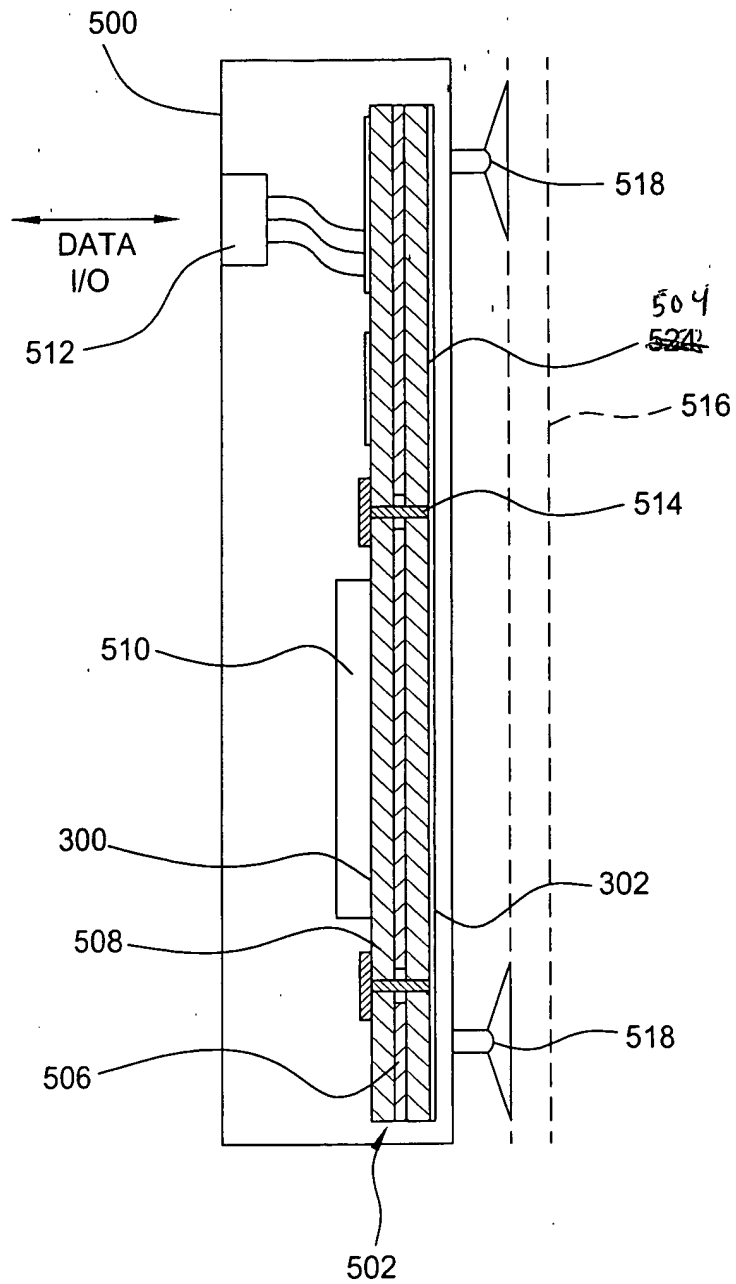


FIG. 5